Identifying Igneous Rocks

Name: _____ Date: _____

Table: _____ Section: _____

Background Vocabulary

Volcanic Rocks: Rocks that have extrusive origins in lava.

Plutonic Rocks: Rocks that have intrusive origins in magma.

Felsic: Those containing larger amounts of quartz and feldspar are lighter in color, high in silica, and are said to be felsic in nature.

Maphic: Those containing hornblende, pyroxene and olivine are darker in color, low in silica, and are said to be mafic in nature.

Intermediate: Rocks that tend to be medium to dark brown or grey and are intermediate in silica.

Aphanitic Texture: Fast cooling lava creating small crystals and fine grains. Aphanitic igneous rocks are of volcanic (extrusive) origin.

Phaneritic Texture: Slow cooling lava creating large crystals (phenocrysts) creating coarse grained texture. Phaneritic igneous rocks are of plutonic (intrusive) origin.

Porphyritic Texture: Minerals of different sizes are present in the same rock. These are well-formed crystals (phenocrysts) surrounded by a fine-grained or aphanitic material (groundmass). Porphyritic textures are common in volcanic rocks, but are occasionally found in plutonic rocks.

Phenocrysts: Larger minerals in igneous rocks.

Groundmass: smaller grains between phenocrysts in igneous rocks.

Pyroclastic Texture: Igneous rocks formed from glass shards, fragments of crystals, and small hunks of pre-existing igneous rock. Rocks with this texture are the products of explosive eruptions, and include deposits of volcanic ash and glowing-ash avalanches (ignimbrites).

Vesicular texture: Type of volcanic glass that has air pockets and bubbles caused by escaping gas, giving the rock a very low density.

Volcanic Glass: A texture that shows no mineral grains and appears to look glassy caused by very quick cooling at the earth's surface.

Identifying Igneous Rocks Data Collection

For the following table, label the following characteristics:

Texture: aphanitic, phaneritic, porphyritic, pyroclastic, vesicular, or volcanic glass.

Color: fesic, maphic, or intermediate

Origin: volcanic or plutonic.

Rock Sample	Texture	Color	Origin
Granite			
Basalt			
Tuff			
Pumice			
Obsidian			
Scoria			

Analyze & Conclude

1. How is it possible to determine the cooling rate of an igneous rock?

2. Which samples are intrusive? What characteristics indicate they are intrusive?

3. Which samples are extrusive? What characteristics indicate they are extrusive?

4. Which samples are felsic? What are the characteristics of felsic igneous rocks?

5. Which samples are mafic? What are the characteristics of mafic igneous rocks?

6. In which samples is it easier to identify the phenocrysts?

7. Which samples occurred from a pyroclastic event?